

Information paper

Quality and Methodology Information

General details

Title of output:	Unexplained Deaths in Infancy in England and Wales
Abbreviated title:	Not applicable
Designation:	National Statistics
Geographic coverage:	Country
Date of last SQR or QMI*:	April 2013
Contact details:	cim@ons.gsi.gov.uk

Executive summary

Since 2004, Office for National Statistics (ONS) has maintained a database of unexplained deaths in infancy, which is used to produce the annual Statistical Bulletin [Unexplained deaths in infancy in England and Wales](#)¹. The Statistical Bulletin includes both sudden infant deaths and deaths for which the cause remained unascertained after a full investigation. The deaths are those that occurred in a given year and were linked to their corresponding birth records. From the linked records, information about parents that was collected at birth registration can be used for analysis of the data according to certain risk factors including birthweight, mother's age at birth of child, mother's country of birth, marital status and parity (number of previous children), and the parent's socio-economic status based on occupation.

Quality reports for [Births](#)² and [Child mortality statistics](#)³ are available on the ONS [website](#)⁴.

This document contains the following sections:

- Output quality;
- About the output;
- How the output is created;
- Validation and quality assurance;
- Concepts and definitions;
- Other information, relating to quality trade-offs and user needs; and
- Sources for further information or advice.

Output quality

This document provides a range of information that describes the quality of the data and details any points that should be noted when using the output.

ONS has developed [Guidelines for Measuring Statistical Quality](#)⁵; these are based upon the five European Statistical System (ESS) Quality Dimensions. This document addresses the Quality Dimensions and important quality characteristics, which are:

- Relevance;
- Timeliness and punctuality;
- Coherence and Comparability;
- Accuracy;
- Output quality trade-offs;

* Quality and Methodology Information' (QMI) replaced 'Summary Quality Reports' (SQR) from 04/11

- Assessment of user needs and perceptions; and
- Accessibility and clarity.

More information is provided about these quality dimensions in the sections below.

About the output

Relevance

(The degree to which statistical outputs meet users' needs.)

The deaths included in the Statistical Bulletin are those that occurred in a given year and were linked to their corresponding birth records.

There is a great deal of interest in the deaths of apparently healthy infants. The findings of the Statistical Bulletin help identify some of the risk factors for these infant deaths. Key users of these data include the foundation for the Study of Infant Deaths (FSID), the Department of Health, Welsh Government and independent researchers, including academics.

Figures are published for unexplained deaths by baby's sex and age at death; month of occurrence; birthweight; mother's age; mother's country of birth; marital status and type of registration; and the dominant NS-SEC (based on occupation) of the parents at the time of registering the death.

Age at death of infants (deaths under one year) is broken down into broad categories of neonatal (deaths under 28 days) and postneonatal (deaths between 28 days and one year). A further distribution of the postneonatal period by months is presented in order to highlight the high concentration of deaths in the earlier months soon after birth.

Birthweight as a risk factor is presented as a grouped variable to draw distinction between death rates for low birthweight (under 2,500 grams) and normal birthweight (2,500 grams and over) babies. Deaths by mother's age at the time of birth provide useful comparison between younger and older age groups.

Mother's country of birth is a grouped variable with two categories: England and Wales; and Outside England and Wales. In previous years, the numbers of sudden infant deaths were presented by a more detailed breakdown of the country variable. However, because of small numbers in each category corresponding rates could not be produced. The categories were collapsed in order to make the publication of rates meaningful.

Unexplained deaths are also published by marital status (inside or outside marriage/civil partnership), registration type (joint or sole registration) and the dominant parental [National Statistics Socio-economic Classification \(NS-SEC\)](#)⁶ as defined by occupation.

In terms of geographical distribution, figures are published at local authority level.

Timeliness and punctuality

(Timeliness refers to the lapse of time between publication and the period to which the data refer. Punctuality refers to the gap between planned and actual publication dates.)

There is a delay of 18 months between the publication date and the end of the period to which the data refer. This allows the death certification proceedings to be completed for the maximum amount of cases possible. The majority of unexplained deaths are certified by a coroner either with or without an inquest; therefore it takes much longer for these deaths to be registered.

The annual release of unexplained deaths figures is announced on the [UK National Statistics Publication Hub](#)⁷ 12 months in advance. Figures are released at the same time every year (in August) and have always been punctual. In the unlikely event of a change to the pre-announced release schedule, public attention will be drawn to the change and the reasons for the change will be explained fully at the same time, as set out in the [Code of Practice for Official Statistics](#)⁸.

How the output is created

Unexplained infant deaths include both sudden and unascertained deaths of babies under one year of age. Sudden infant deaths are those coded to the International Classification of Diseases tenth revision (ICD-10) code, R95 sudden infant death syndrome. This Statistical Bulletin includes infant deaths where there was any mention of the terms 'sudden infant death',

'cot death', 'SIDS', 'crib death' or another similar term anywhere on the death certificate. Unascertained deaths are those coded to the ICD-10 code, R99 Other ill-defined and unspecified causes of mortality. This Statistical Bulletin includes infant deaths where the only mention on the death certificate is unascertained death.

Since 2004, ONS has maintained a database of unexplained infant deaths, which includes information collected at birth and death registration of infants. This database is created using a late extract from the standard deaths registrations database. The extract is taken late to allow enough time for registration following certification by a coroner. The deaths are linked to their corresponding birth record where possible.

The infant death rates are calculated using the number of live births that occurred in the same year as the denominator.

Validation and quality assurance

Accuracy

(The degree of closeness between an estimate and the true value.)

Birth and death statistics in England and Wales are derived from birth and death registrations. The ONS publication [Child mortality statistics](#)⁹ provides detailed information on the collection, processing and quality of birth and mortality data for England and Wales.

The underlying data for this Statistical Bulletin comprise infant deaths that have been successfully linked to their corresponding birth records. Typically, the linkage rate is around 98%. The unlinked cases can be split into two groups: those that cannot be linked (such as those born outside England and Wales, foundlings and adopted infants) and others that, theoretically, should have been linked but for which no birth record can be found. Further information on the linkage process is available under the section titled 'Linkage of births and deaths' of [Child Mortality Metadata](#)¹⁰.

Coherence and comparability

(Coherence is the degree to which data are derived from different sources or methods, but refer to the same topic, are similar. Comparability is the degree to which data can be compared over time and domain for example, geographic level.)

Based on evidence that the terms 'sudden infant death' and 'unascertained' are used interchangeably by coroners certifying these deaths (Limerick and Bacon, 2004) and research showing that the characteristics of infants dying of these two causes are very similar (Corbin, 2005), ONS decided to include both groups in any analysis of unexplained infant deaths from 2005.

ONS is the only provider of statistics on unexplained deaths in infancy for England and Wales. There are secondary users of these statistics who report the figures provided by ONS. It is not possible to compare these statistics with other sources because there are no other data providers.

Figures for unexplained deaths are available from 1995 onwards and have been calculated using the same methodology and are therefore comparable. Comparable figures for unexplained deaths by various risk factors are available for 2004 onwards.

Concepts and definitions

(Concepts and definitions describe the legislation governing the output and a description of the classifications used in the output.)

The term 'sudden infant deaths' was first used as a cause of death in the early 1960s and was defined in 1969 as 'the sudden unexpected death of any infant or young child which is unexpected by history and in which a thorough post-mortem examination fails to demonstrate an adequate cause of death'. This definition was revised in 1989 by the US National Institute of Health to include only infants dying suddenly under one year of age (Zylke, 1989). Sudden infant death (SID), sudden unexpected death in infancy (SUDI), sudden infant death syndrome (SIDS) or similar terms are identified by the automatic cause coding system used by ONS and are all coded to the International Classification of Diseases tenth revision (ICD-10) code R95. The term 'cot death' is used interchangeably with 'sudden infant death' and the former is more widely used among the non-technical users of statistics on SIDS.

Unascertained deaths are those for which the cause remains unknown after investigation. The changes that have been identified in the certification practices surrounding sudden infant deaths and unascertained deaths suggest that the distinction between these two causes of death is becoming blurred. While sudden infant deaths were previously recorded as natural and the term 'unascertained deaths' was used for deaths of unknown cause, this no longer appears to be the case.

Key definitions for terms used in the Statistical Bulletin include:

- Infant deaths - deaths under one year of age;
- Neonatal deaths - deaths under 28 days;
- Postneonatal deaths - deaths between 28 days and one year;
- Parity - the number of total births a woman has had previously (historically only recorded for married women when registering a birth); and
- Rates - neonatal, postneonatal and infant mortality rates are reported as deaths per 1,000 live births.

Other information

Output quality trade-offs

(Trade-offs are the extent to which different dimensions of quality are balanced against each other.)

Checks are carried out quarterly by ONS on the birth registration data in preparation for the release of provisional quarterly figures. These checks pick up any suspect records or information within a record that needs to be queried with the [General Registry Office \(GRO\)](#)¹¹. These records are then corrected where appropriate. Any birth records which are still missing mother's age, father's age, marital status, duration of marriage or previous number of children for births within marriage, are imputed. This process means that all records can be published by these variables. Although imputation means that the data are not exact, delay and costs are kept to a minimum.

The information on occupation of the parents is coded for a 10% sample of births. The 10% coding for occupation was found to give a good approximation to the actual data while being cost effective ([ONS, 2007](#))¹². Combining occupation with employment status means that a code for socioeconomic classification (NS-SEC) can be derived. Analysis evaluating the use of both parents' NS-SEC for the production of birth and infant mortality statistics has been published ([ONS, 2013](#)) and this approach has been adopted¹³.

Assessment of user needs and perceptions

(The processes for finding out about uses and users, and their views on the statistical products.)

A user consultation to review infant mortality statistics produced by ONS took place between 5 July and 16 August 2011 and the [response to the consultation](#)¹⁴ is available on the ONS website. A consultation to review a range of ONS outputs took place between 2 September and 31 October 2013. The ONS [response to the consultation on outputs](#)¹⁵ is available on the ONS website.

All health and life events related statistical bulletins seek feedback from users with the inclusion of a standard statement within the background notes, 'We welcome feedback from users on the content, format and relevance of this release.'

User feedback is requested at the bottom of all e-mails sent by customer service teams within the division. The standard wording is outlined below, 'We welcome feedback on the content, format and relevance of the data provided. Please provide any feedback and state whether you would like your contact details to be added to our list of users'. All known users will be invited to participate in any consultations that are run.

The producers of the Statistical Bulletin maintain regular contact with [The Lullaby Trust](#)¹⁶, who are active in raising awareness about sudden and unexplained infant deaths.

The Maternity Exchange Information user group and Fertility Management meetings also provide an opportunity to connect with both suppliers and users of the data.

Sources for further information or advice

Accessibility and clarity

(Accessibility is the ease with which users are able to access the data, also reflecting the format in which the data are available and the availability of supporting information. Clarity refers to the quality and sufficiency of the release details, illustrations and accompanying advice.)

The latest figures on [Unexplained deaths in infancy](#)¹⁷ can be accessed free of charge on the ONS website. A Statistical Bulletin containing context and commentary accompanies this release. More general information on the collection, production and quality of mortality data is available in [Mortality metadata](#)¹⁸.

ONS's recommended format for accessible content is a combination of HTML webpages for narrative, charts and graphs, with data being provided in usable formats such as CSV and Excel. The ONS website also offers users the option to download the narrative in PDF format. In some instances other software may be used, or may be available on request. For further information please refer to the contact details at the beginning of this document.

For information regarding conditions of access to data, please refer to the links below:

- [Terms and conditions \(for data on the website\)](#)¹⁹;
- [Copyright and reuse of published data](#)²⁰;
- [Pre-release access \(including conditions of access\)](#)²¹;
- [Access to unpublished data](#)²²;
- [Access to microdata via the Virtual Microdata Laboratory](#)²³; and
- [Accessibility](#)²⁴.

In addition to this Quality and Methodology Information, Basic Quality Information relevant to each release is available in the background notes of the relevant Statistical Bulletin.

Useful links

[Unexplained deaths in infancy](#)¹⁷ presents statistics on occurrences of sudden infant deaths and deaths for which the cause remained unknown or unascertained. [Child mortality statistics](#)²⁵ presents detailed statistics on stillbirths, infant deaths and childhood deaths occurring annually in England and Wales. The [birth cohort tables for infant deaths](#)²⁶ provide specific data for deaths of infants born in a given calendar year using additional data from the birth record. [Gestation specific mortality](#)²⁷ presents data on live births and infant deaths by gestational age, while [Infant and perinatal mortality by social and biological factors](#)²⁸ (now discontinued) provides statistics on infant and perinatal mortality by father's occupation, mother's country of birth, birthweight, mother's age.

There are also rolling [three-year aggregated infant mortality figures at local authority level](#)²⁹. The [Vital Statistics: Population and Health Reference Tables](#)³⁰ provide quarterly and annual infant mortality data for the United Kingdom and its constituent countries (based on deaths registered in a year).

Summary data for infant mortality in England and Wales (based on deaths registered in the year), are available in the [Deaths registrations summary tables](#)³¹.

A geographical breakdown of infant death numbers and rates by local authority and county level is available in [deaths registered in England and Wales by area of usual residence](#)³².

For data for other UK countries please see [the latest infant death statistics for Northern Ireland](#)³³ and [the latest infant death statistics for Scotland](#)³⁴.

The [Births summary tables](#)³⁵, England and Wales provide key summary statistics for live births in England and Wales.

Other useful information

- [Response to the ONS review of infant mortality statistics](#)¹⁴.
- [Response to the ONS consultation on outputs](#)¹⁵.
- [Results from the ICD-10 bridge coding study for stillbirths and neonatal deaths](#)³⁶.
- [Disclosure Control Policy for Birth and Death Statistics](#)³⁷.

For further information on child mortality statistics based on deaths registered in a particular period, please contact:

Mortality Team
 Health and Life Events Division Office for National Statistics
 Cardiff Road
 Newport
 NP10 8XG
 Tel: 01633 45 5898
 E-mail: cim@ons.gsi.gov.uk

Special extracts and tabulations of child mortality data for England and Wales are available to order for a charge (subject to legal frameworks, disclosure control, resources and agreements of costs, where appropriate). For such enquiries, please use the contact details above.

References

Reference number	Reference title	Link
1	Statistical Bulletin: Unexplained deaths in infancy in England and Wales 2010	http://www.ons.gov.uk/ons/rel/child-health/unexplained-deaths-in-infancy--england-and-wales/index.html
2	Births Quality and Methodology Information report	http://www.ons.gov.uk/ons/guide-method/method-quality/quality/quality-information/population/quality-and-methodology-information-for-birth-statistics.pdf
3	Child mortality statistics Quality and Methodology Information report	www.ons.gov.uk/ons/guide-method/method-quality/quality/quality-information/population/qmi-for-child-mortality-statistics.pdf
4	ONS website	www.ons.gov.uk/ons/index.html
5	Guidelines for Measuring Statistical Quality	www.ons.gov.uk/ons/guide-method/method-quality/quality/guidelines-for-measuring-statistical-quality/index.html
6	The National Statistics Socio-economic Classification (NS-SEC rebased on the SOC2010)	www.ons.gov.uk/ons/guide-method/classifications/current-standard-classifications/soc2010/soc2010-volume-3-ns-sec--rebased-on-soc2010--user-manual/index.html
7	UK National Statistics Publication Hub	www.statistics.gov.uk/hub/index.html
8	Code of practice	www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html
9	Child mortality statistics (all releases)	www.ons.gov.uk/ons/publications/all-releases.html?definition=tcm%3A77-210649
10	Child Mortality Metadata	www.ons.gov.uk/ons/guide-method/user-guidance/health-and-life-events/child-mortality-statistics-metadata.pdf
11	General Registry Office (GRO)	www.gov.uk/browse/births-deaths-marriages
12	Office for National Statistics (2007) 'Birth Statistics, England and Wales'	http://www.ons.gov.uk/ons/rel/vsob1/birth-statistics--england-and-wales--series-fm1/-no-36--2007/birth-statistics-series-fm1.pdf

13	A combined approach to National Statistics Socio-economic Classification	http://www.ons.gov.uk/ons/guide-method/user-guidance/health-and-life-events/a-combined-approach-to-national-statistics-socio-economic-classification/index.html
14	Response to the ONS review of infant mortality statistics March 2012	www.ons.gov.uk/ons/about-ons/user-engagement/consultations-and-surveys/archived-consultations/2011/review-of-infant-mortality-statistics/response-to-the-ons-review-of-infant-mortality-statistics.pdf
15	Response to the ONS consultation on outputs	http://www.ons.gov.uk/ons/about-ons/get-involved/consultations/consultations/statistical-products-2013/index.html
16	The Lullaby Trust	http://www.lullabytrust.org.uk/
17	Unexplained deaths in infancy	www.ons.gov.uk/ons/rel/child-health/unexplained-deaths-in-infancy--england-and-wales/index.html
18	Mortality metadata	http://www.ons.gov.uk/ons/guide-method/user-guidance/health-and-life-events/index.html
19	Terms and conditions (for data on the website)	www.ons.gov.uk/ons/site-information/information/terms-and-conditions/index.html
20	Copyright and reuse of published data	www.ons.gov.uk/ons/site-information/information/creative-commons-license/index.html
21	Pre-release access (including conditions of access)	www.ons.gov.uk/ons/guide-method/the-national-statistics-standard/code-of-practice/pre-release-access/index.html
22	Access to unpublished data	http://www.ons.gov.uk/ons/about-ons/business-transparency/index.html
23	Access to microdata via the Virtual Microdata Laboratory	http://www.ons.gov.uk/ons/about-ons/business-transparency/freedom-of-information/what-can-i-request/virtual-microdata-laboratory--vml-/index.html
24	Accessibility	www.ons.gov.uk/ons/site-information/information/accessibility/index.html
25	Child mortality statistics	www.ons.gov.uk/ons/rel/vsob1/child-mortality-statistics--childhood--infant-and-perinatal/index.html
26	Birth cohort tables for infant deaths	www.ons.gov.uk/ons/rel/vsob1/birth-cohort-tables--england-and-wales/index.html
27	Gestation specific mortality	www.ons.gov.uk/ons/rel/child-health/gestation-specific-infant-mortality-in-england-and-wales/index.html
28	Infant and perinatal mortality by social and biological factors	www.ons.gov.uk/ons/rel/child-health/infant-and-perinatal-mortality-in-england-and-wales-by-social-and-biological-factors/index.html
29	Three-year aggregated infant mortality figures at local authority level	www.ons.gov.uk/ons/rel/vsob1/vital-statistics--population-and-health-reference-tables/index.html
30	Vital Statistics: Population and Health Reference Tables	www.ons.gov.uk/ons/rel/vsob1/vital-statistics--population-and-health-reference-tables/index.html
31	Deaths registrations summary tables	www.ons.gov.uk/ons/rel/vsob1/death-reg-sum-tables/index.html
32	Deaths registered in England and Wales by area of usual residence	www.ons.gov.uk/ons/rel/vsob2/monthly-provisional-figures-on-deaths-registered-by-area-of-usual-residence--england-and-wales/index.html
33	Infant death statistics for Northern Ireland	www.nisra.gov.uk/demography/default.asp9.htm
34	Latest infant death statistics for Scotland	www.gro-scotland.gov.uk/statistics/theme/vital-events/general/ref-tables/index.html
35	Births summary tables	www.ons.gov.uk/ons/rel/vsob1/birth-summary-tables--england-and-wales/index.html

36	Results from the ICD-10 bridge coding study for stillbirths and neonatal deaths.	www.ons.gov.uk/ons/rel/child-health/results-of-the-icd-10-v2010-bridge-coding-study-for-stillbirths-and-neonatal-deaths--england-and-wales/2009/stillbirths-and-neonatal-deaths.pdf
37	Disclosure Control Policy for Birth and Death Statistics.	www.ons.gov.uk/ons/guide-method/best-practice/disclosure-control-policy-for-birth-and-death-statistics/index.html